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18.1 Overview

This chapter addresses the design of foundations to support marine structures. Such structures include dolphins, wing walls, wharfs, terminal structures and docks, pedestrian ramps, and terminal buildings. Other than the pedestrian ramps and terminal buildings, these structures must handle ship impact loads and wave loads. While this may affect the load groups required, the foundation designs and resistance factors required are the same as for other transportation facilities. Therefore, **WSDOT GDM Chapter 8** shall be used for foundation design for marine structures, other than for terminal buildings, in which case the **IBC (2003)** should be used as the basis for foundation design.

18.2 Design Philosophy

Normally, structures subject to ship impact loads are designed to fully resist those loads. However, for ferry terminals, the greater risk in terms of financial loss and potential loss of life is the potential to damage the ship. Therefore, ferry terminals subject to ship impact loads need to be designed to be flexible enough to slow down the ship without damaging the ship. If foundation failure occurs, the choice is to have the foundation fail before the ship is damaged. This requires that foundation elements be designed with a lower margin of safety than is required by the current AASHTO specifications and WSDOT GDM Chapter 8.

18.3 Load and Resistance Factors for Marine Structures Subject to Ship Impact

To be determined.

18.4 References

International Code Council, Inc. (2002). 2003 International Building Code. Country Club Hills, IL.

